

AN/SPQ-14(V)

ASDS

ADVANCED SENSOR DISTRIBUTION SYSTEM



NAVAL SEA SYSTEMS COMMAND

COMBAT DIRECTION SYSTEMS ACTIVITY, DAM NECK

NAVAL SURFACE WARFARE CENTER DAM NECK

DAHLGREN

DAM NECK

Naval Surface Warfare Center Dam Neck, VA provides full Program Management support for the AN/SPQ-14(V) Advanced Sensor Distribution System (ASDS). ASDS is currently installed on over 48 US Navy Ships, including CVN, LCC, LHA, LHD, DDG and LPD Class Ships. ASDS is scheduled for installation on all New Construction CVN, LPD, LHA, LHD and DDG Class Ships. In addition, ASDS is scheduled for backfit on all CG Modernization Ships (COTS Refresh (CR2)). ASDS is a Radar Distribution System that converts all Naval Surface and Air Search Radar information into a standard digital format and distributes this data to Radar Navigation and Tactical Displays throughout the platform. In addition, ASDS provides common track information to all AN/SPA-25G's located throughout the platform. ASDS employs Commercial-Off-The-Shelf equipment, providing an Open System Architecture allowing for compatibility with emerging technologies.

ASDS was developed by NSWC Dam Neck as an upgrade to the older Radar Display and Distribution System (RADDS) AN/SPQ-12(V). RADDS is currently installed on over 148 additional U.S. Navy Ships. NSWC Dam Neck is a Naval Sea Systems Command (NAVSEA).

ASDS Mission & Vision

ASDS Mission: Provide a digital, real-time, efficient and cost effective method of sensor distribution to all display consoles for the present and future shipboard requirements.

ASDS Vision: Leading the Navy's challenging sensor data distribution efforts into the future with superior technology.

System Capability

Point-to-Point Sensor Distribution. ASDS fully supports point-to-point sensor information distribution through use of Radar Signal Data Converters, CV-3989(V)1/SP and Radar Switchboards, SB-4229A(V)/SP, SB-4229B(V)/SP and MT-7265/S. This combination of equipment allows for all Navy radar systems to be distributed in real time with no latency to ensure tactical decision makers have the data required for the decision making process.

Local Area Network (LAN) Sensor Distribution. ASDS presently supports LAN distribution onboard some CVN, LHA and LCC Class and is aggressively pursuing more efficient data distribution methods utilizing fiber optic technology. The development of the LAN Radar Display and Distribution System (LRADDS) is underway and targeted for AEGIS COTS Refresh (CR3).

Common Radar Track Numbering. ASDS acquires contact information from all of the AN/SPA-25G's and distributes common radar track numbers to each of the AN/SPA-25G's with the use of a CP-2294(A)/SPA-25G Tactical System Interface Unit (TSIU) Computer System. The TSIU computer systems communicate to a CD-135/U Tracking Data Controller (TDC) or Host Computer across a fiber-optic LAN, which shares track information between ASDS and a number of other systems, including the Advanced Combat Direction System (ACDS) and the Computer-Aided Dead Reckoning Tracer (CADRT). The AN/SPA-25H development is nearing completion and will replace three nomenclatured equipments, providing rapid turn-on capability and track commonality between the various units. The AN/SPA-25H is a Q-70 family display and will replace the AN/SPA-25G, CP-2294(A)/SPA-25G and CD-135/U.

Radar Recording. ASDS features a Radar Recorder capable of recording and playback of shipboard radar sets. The recorder is connected to the radar switchboard allowing for operators to select which radar is to be recorded and controlling which consoles may receive the playback of the recorded radar. This function has proven extremely useful in training for ingress and egress operations. Additionally radar recording provides historical reference of navigational operations.

Video Simulation. ASDS includes a radar video simulator known as the Portable Radar Operator Video Trainer (PROVT). The SM-907/U is a PC based, portable simulator used to generate dynamic or stored radar scenarios. PROVT provides one of the most effective training tools for the Afloat Training Group to train CIC watch teams. This unit is also being installed onboard ships as a low cost training tool.

Data Interfaces. ASDS has a two-way interface with ACDS Block 0 Level10 and a one-way interface with the AN/SPS-73 Surface Search Radar and the CADRT. These interfaces allow for AN/SPA-25G's to share/display common track numbers and allow for each of the above systems to see a common track picture on tactical and navigational displays.

Compatibility

Display Compatibility. ASDS consists of decoders that allow the system to supply the necessary signals to drive all tactical displays in the combat systems (OJ-194, AN/UYQ-70, OJ-451). These decoders are also used to provide specific formats to Ships Data Multiplexing System (SDMS), TPX-42, Integrated Bridge System (IBS), and FMS equipments.

IFF Compatibility. ASDS is an integral part of each platform's IFF system. ASDS has established the means of IFF Sensor distribution from the AN/UPX-29 and AIMS MK XII. The IFF Distribution is in analog video format.

System Hardware

- SB-4229A (V)/SP – Radar Signal Distribution Switchboard
- SB-4229B (V)/SP – Radar Signal Distribution Switchboard and Converter
- MT-7254/S – Electrical Equipment Rack
- CV-3989 (V) 1/SP – Dual Signal Data Converter
- CD-135/U – Tracking Data Controller
- RD-670/U – Recorder-Reproducer
- SM-902/U – Video Signal Simulator (VSS) Emulator
- RADDS Decoder – Mil-Std-751 to Analog Format
- CP-2294/SPA-25G – Tactical System Interface Unit (TSIU) Computer System
- CP-2294A/SPA-25G – Tactical System Interface Unit (TSIU) Computer System
- AM-7115 Video Amplifier & AM-7116 Trigger Pulse Amplifier
- AN/SPA-25G – Indicator Group
- AN/SPA-25H – Indicator Group
- SM-907/U PROVT – Radar Simulator

Laboratories and Facilities. The ASDS Program operates functional labs at NSWC Dam Neck in Virginia Beach, Virginia. These labs feature full integration of multiple live Navy radars and combat systems. Additionally, system prototypes and upgrades are designed and tested at this site.

Roles and Responsibilities. NSWC Dam Neck performs the following functions, in support of the ASDS Program: Project Management, Acquisition Engineering, Technical Design, In-Service Engineering, System Integration, Software Support and Complete Logistics Support.



NSWCDD/MP-02/68

Approved for public release; distribution is unlimited.

For additional information, please contact:

Naval Surface Warfare Center Dam Neck

Telephone: (757) 492-6312

Or visit us at: <http://www.navsea.navy.mil/nswc/damneck/>